

§ 1039.510

40 CFR Ch. I (7–1–04 Edition)

(c) During idle mode, operate the engine with the following parameters:

(1) Hold the speed within your specifications.

(2) Set the engine to operate at its minimum fueling rate.

(3) Keep engine torque under 5 percent of maximum test torque.

(d) For full-load operating modes, operate the engine at its maximum fueling rate. However, for constant-speed engines whose design prevents full-load operation for extended periods, you may ask for approval under 40 CFR 1065.10(c) to replace full-load operation with the maximum load for which the engine is designed to operate for extended periods.

(e) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

(f) For those cases where transient testing is not necessary, perform the steady-state test according to this section after an appropriate warm-up period, consistent with 40 CFR part 1065, subpart F.

§ 1039.510 Which duty cycles do I use for transient testing?

(a) Measure emissions by testing the engine on a dynamometer with one of the following transient duty cycles to determine whether it meets the transient emission standards in § 1039.101(a):

(1) For variable-speed engines, use the transient duty cycle described in Appendix VI of this part.

(2) [Reserved]

(b) The transient test sequence consists of an initial run through the transient duty cycle from a cold start, 20 minutes with no engine operation, then a final run through the same transient duty cycle. Start sampling emissions immediately after you start the engine. Calculate the official transient emission result from the following equation:

Official transient emission result = $0.05 \times$ cold-start emission rate + $0.95 \times$ hot-start emission rate.

(c) Cool the engine down between tests as described in 40 CFR 86.1335–90.

(d) For validating cycle statistics, you may delete from your regression analysis speed, torque, and power points for the first 23 seconds and the

last 25 seconds of the transient duty cycle.

§ 1039.515 What are the test procedures related to not-to-exceed standards?

(a) *General provisions.* The provisions in 40 CFR 86.1370–2007 apply for determining whether an engine meets the not-to-exceed emission standards in § 1039.101(e). Interpret references to vehicles and vehicle operation to mean equipment and equipment operation.

(b) *Special PM zone.* For engines certified to a PM standard or FEL above 0.07 g/kW-hr, a modified NTE control area applies for PM emissions only. The speeds and loads to be excluded are determined based on speeds B and C, determined according to the provisions of 40 CFR 86.1360–2007(c). One of the following provisions applies:

(1) If the C speed is below 2400 rpm, exclude the speed and load points to the right of or below the line formed by connecting the following two points on a plot of speed-vs.-power:

(i) 30% of maximum power at the B speed; however, use the power value corresponding to the engine operation at 30% of maximum torque at the B speed if this is greater than 30% of maximum power at the B speed.

(ii) 70% of maximum power at 100% speed.

(2) If the C speed is at or above 2400 rpm, exclude the speed and load points to the right of the line formed by connecting the two points in paragraphs (b)(2)(i) and (ii) of this section (the 30% and 50% torque/power points) and below the line formed by connecting the two points in paragraphs (b)(2)(ii) and (iii) of this section (the 50% and 70% torque/power points). The 30%, 50%, and 70% torque/power points are defined as follows:

(i) 30% of maximum power at the B speed; however, use the power value corresponding to the engine operation at 30% of maximum torque at the B speed if this is greater than 30% of maximum power at the B speed.

(ii) 50% of maximum power at 2400 rpm.

(iii) 70% of maximum power at 100% speed.